ETAAC Federal Subgroup

An Analysis of H.R. 2454 and its Affects on AB 32

September 30, 2009

Introduction

In this report, the ETAAC subgroup on Federal climate activities provides information on possible effects of Federal climate legislation on California's AB 32. To perform this analysis we worked from the "American Clean Energy and Security Act of 2009" (H.R. 2454 by Waxman and Markey) as it passed the House of Representatives in June 2009. In this document we refer to the Act using the shorthand "ACES".

The ETAAC Federal subgroup looked specifically at several issues:

1. How does ACES compare to AB 32?
2. How does ACES affect California's ability to meet the GHG reductions targets as defined in the Scoping Plan for AB 32?
3. What are the estimated flows of GHG allowances into California?
4. How do the definitions of offsets and biomass in ACES affect comparable definitions in AB 32?

Background

Our work was informed by several documents that we list below.

Official information on ACES can be found at the House energy web site at

http://energycommerce.house.gov/index.php?option=com_content&view=article&id=1633&catid=155&Itemid=55

An section-by-section analysis of ACES can be found at the Environment NorthEast website:

http://www.env-ne.org/resources/open/p/id/885/resource/ENE%2520ACES%2520Summary

WRI and Georgetown Climate Center produced an analysis of the allowance distribution to states and energy consumers under ACES:

http://www.wri.org/stories/2009/07/analysis-allowances-states-under-hr-2454

An economic analysis of ACES can be found at

http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf(2009)05.pdf

Comparing ACES & AB 32

Table one examines the major categories in ACES (renewable electricity standard, lighting and appliance efficiency, etc.) and summarizes

- The specific programs defined by ACES
- The equivalent programs in the CARB scoping plan
- Existing California policy and implementation status
- The effect of concurrent ACES and AB 32 implementations
- Additional comments or observations by ETAAC members

Comparing ACES to AB 32 Scoping Plan reductions

In Tables 2A and 2B we examine reduction measures approved in the AB 32 scoping plan to see how ACES could affect them. The effects fall into several categories:

- ACES has no impact
- ACES limits or replaces California authority
- ACES provides complementary funding
- Definitions can cause ambiguity
- Reductions that might have occurred in California may occur elsewhere

Table 2A identifies possible impacts of ACES on the Scoping Plan.

There are three major impacts that we overview in more detail. These include

1. A moratorium on California cap-and-trade policies,
2. Additional energy efficiency programs, and
3. Additional funding for state programs.

Moratorium on California cap-and-trade policies

As defined in the Scoping Plan, 139.6 MMT of the 174 MMT total reductions come from regulatory measures that will still be in force under ACES. Some reductions from ACES also occur through regulatory measures – for example renewable energy and energy efficiency. Those reductions fall within the regulatory measures in the Scoping Plan and are not additional.

In several cases that we identify in Table 2B, free allowances from ACES to California state government and to California Local Distribution Companies (LDC); and DOE efficiency programs will assist achieving those reductions.

ACES creates a moratorium on the California Cap-and-trade program from 2012 – 2017. This could impact or enhance some or all of the 34.4 MMT reductions called for by the Scoping Plan.

The mandatory U.S. reductions from ACES are 17% below 2005 emissions by 2020 while the reductions required under AB 32 are a return to 1990 levels by 2020. According to CARB's inventory, California's 2005 level was 475.7 MMT and 1990 level was 427 MMT. The ACES required 17% reduction below 2005 levels for California is more stringent than AB 32 and would be 394.8 MMT - which is below the 1990 level.

California entities covered by a Federal Cap-and-Trade policy should be the same as those covered by a California Cap and Trade system (i.e. sources over 25,000 tonnes per year plus transportation emissions). It is likely that the amount of GHG emission reductions from California facilities required by ACES under a Federal Cap-and –Trade system will be equivalent to or greater than the reductions required or delivered under a California Cap-and-Trade system. The emission reductions required of California facilities by ACES or by the Scoping Plan could occur within California or elsewhere. California's 2020 target accounts for emissions associated with energy consumed in state from electricity produced out-of-state. If reductions outside of California occur at the behest of California sources, it is presumably because it is more cost effective to obtain emission reductions in this way and would result in a lower overall cost to California consumers.

There is no requirement, nor reason that facilities in every state should reduce by the same amount – given the global nature of GHG emissions and the benefits of a broader Cap-and-Trade system. By design, we would expect the reductions to occur where they are the most feasible and cost-effective. Subject to the availability of high-quality offsets and assuming that program mandates do not prescribe specific emission reduction actions, regulated entities will look for the lowest cost solutions among the choices of:

1. Reduce emissions at the facility
2. Competitively purchase allowances through the market.
3. Purchase offsets

If every California facility either reduced emissions or purchased offsets, there is the potential of achieving greater reductions under ACES than what would have occurred under the Scoping Plan. However, if facilities mostly purchased allowances, this would reduce the amount of reductions credited to California under ACES + AB 32 than what would have occurred under AB 32 alone. (But it would not reduce the absolute quantity of emission reductions.)

We have no particular way to estimate what will happen. Instead, we modeled the unlikely, worse case scenario of no reductions from cap-and-trade credited to California. For a reduction to be credited to the California emissions inventory, either the reduction had to occur in California or a California regulated facility had to purchase an offset. The Scoping plan already contemplates crediting both out of state WCI allowances and certain offsets. See table 3 for the analysis.

Additional Energy Efficiency

ACES distributes free allowances to Local Distribution Companies (LDC) to be used for customer benefits – including GHG reduction measures. This illustrative analysis assumes that state agencies determine that federal allowance value should be used to extend existing LDC and other programs. Depending on the percentage of free allowances used for GHG reduction by LDCs, we estimate reductions up to 5.4 MMT beyond the Scoping Plan could occur through measures funded by ACES. This assumes that the LDCs allocate 25% of their allowances towards GHG reductions versus other consumer benefits and this funding can achieve additional reductions. This report does not examine whether efficiency reductions are feasible at the funding level which may be available from ACES allowances.

ACES also distributes allowances to the state for energy efficiency measures; some allocations are earmarked for specific measures to reductions, but most of the allocations can be used on a menu of acceptable measures. Instead of attempting to model reductions from these measures, which are less quantifiable, we calculated their value and merged them with the "Additional Funds" mentioned below. A summary of the funding can be found in Table 2B.

Additional Funds for State Programs

The state receives allocations to be used on energy efficiency and renewable energy. This distribution of free allowances can be used as incentive funds for additional reductions. We ran several different scenarios to quantify this benefit. For simplicity we assume the state would use all additional funds resulting from ACES as incentives to achieve in-state reductions that would be necessary to meet AB 32. Since we do not know what programs the state might use, we simply calculate the available revenue per ton of reduction needed. For the purposes of this exercise, we assume no new state regulatory measures but rather pure incentive programs. The analysis assumes that federal allowance value is fully incremental to existing state efficiency funding. It is possible that federal funding, could, in part, replace state funding.

Assuming the worst-case scenario of a 34.4 MMT shortfall due to the moratorium of the California Cap and Trade program, we created a model to analyze possible pathways towards recouping 34.4 MMT using ACES funding. There are many uncertainties regarding how the ACES legislation will play out; we identified some of

the most uncertain variables, analyzed their effect on additional reductions by computing revenues available per ton shortfall. Our base case is shown below:

We project that California LDCs will reduce GHG emissions by an additional 5.4 MMT beyond the scoping plan, and the state will have roughly $4.37B available to recoup the remaining 29 MMT. This results in $151 revenue for every ton of reduction needed.

% Allocations	7%	Mean of calculated estimate using Census and State Energy data (7.5%) and actual % of same allocation regime from previous legislation (6.5%)
$/kWh	$0.25	Average cost in CA to reduce 1 kWh/year
CO2 content	0.82	7000 btu/kWh (on the margin - natural gas) at 117 lbs. CO2/million btu
% utility allocations	25%	Percentage LDC free allowances used for efficiency
Market price	$13-16	EPA projection for ACES
Revenues/ton:	**$151**	

Table 3 displays all the baseline values from which we executed our sensitivity analysis. Table 3B explains the sensitivity analysis in detail.

For most scenarios, we found that California would have revenue of $130-$170/ton available from ACES to fund reductions to meet the shortfall. Some of the "high end" scenarios produce revenue estimates of $200-$600/ton; these include the high market-price scenario and the case where LDCs spend a high percentage of their allocations on energy efficiency.

We have included our model in this report as an Excel file (ETAAC Model - HR2454 and AB32 Scoping Plan.xls). It may prove useful as legislation changes or if other groups would like to run other scenarios.

Offsets

ACES uses offsets extensively, as compared to the proposed offset quantity limits in AB32. Also, ACES has different proposed offsets standards than the AB 32 Scoping Plan and Western Climate Initiative (WCI) proposals, and California's voluntary Climate Action Reserve (CAR). Table four itemizes the use of offsets in ACES, comparable programs and definitions in the Scoping Plan, WCI & CAR, the impacts

on California and issues identified by the ETAAC subgroup. Table five uses the same format to compare the biomass definitions.

Based on our analysis, we have provides a set of comments summarized in table six.

Summary

In this report, we have summarized the significant ways that ACES interacts with the Scoping Plan. The major effects are (1) the change from a California or regional trading system to a national one, (2) the distribution of free allowances to be used by LDC for GHG emission reductions and (3) the distribution of free allowances to the state for GHG emission reductions. We have modeled a set of possible scenarios to characterize possible shortfalls in GHG reductions and revenue available to use to overcome those shortfalls.

Offsets and biomass have different definitions in ACES and the Scoping Plan. While offsets are a way of reducing overall costs, they must be carefully defined in order to insure the integrity of the overall system and the cap. Biomass used for energy generation, must be defined in a way to accurately reflects the actual GHG emissions and accounts for any GHG emission increases from changes in land use.

Respectfully submitted,

The ETAAC Federal Subgroup

Table 2A - The Impact of ACES on AB 32 reductions

AB 32			ACES
Category	**Reductions (MMTs) in 2020**	**Details**	**Potential ACES increase/decrease in GHG reductions?**
LDV GhG Standards	31.7	Pavley Standards	no impact
		Develop Pavley II LDV standards	no impact
Energy Efficiency	26.3	Building/appliance efficiency	Improvement due to DOE appliance standards, BICAD program, money from ACES for efficiency
		Comb. Heat and power +30K GWh	
		Solar Water Heating (AB 1470)	
Renewables Portfolio Standard	21.3	30% by 2020	
Low Carbon Fuel Standard	15		*Indirect land use prohibition at the federal level may hinder achieving reductions vs. "fuel shuffling"*
Regional Transport.-related GHG targets	5		
Vehicle Efficiency measures	4.5		
Goods Movement	3.7	Ship electrification	*benefits from confirmation of US EPA authority to regulate GHG from new heavy duty vehicles, locomotives, marine vessels*
		Efficiency improvements	
Million Solar Roofs	2.1		
Medium/Heavy duty vehicles	1.4	HDV GHG reduction - aerodynamics	*no authority provided to regulate in-use HDVs*
		M/HDV hybrid	
High Speed Rail	1		
Industrial (under cap and trade)	0.3	Refinery	
		EE and Co-benefits audits	
Additional need	**34.4**		Decrease of 34.4 due to moratorium.
High GWP gas measures	20.2		
Sustainable Forests	5		
Industrial (not under cap)	1.1	Oil/gas extraction and transmission	
Recycling and Waste	1	landfill methane capture	
Current Scoping Plan Total	174		
Worst case decrease from ACES	-34.4		
Quantifiable Increase due to ACES money for energy efficiency from 2012-2020 [1]	5.4		
TOTAL Estimated GHG Reductions with AB32 and ACES (2020)	**145.0**		

GHG Reduction Shortfall	29.0		
Additional ACES Allocation Money available for GHG Reductions from 2012-2020:	$4,367,245,706	To recoup shortfall of GHG reductions using ACES money, CA will have to reduce from 2012-2020 at the rate per ton CO2e, permanent reductions of [2]:	$151

Notes:

[1] This number is from electric utility data, giving us a conversion factor of tons CO2e/$. For other allocations in ACES, this conversion factor is not easily attainable OR the sector is too broad to give specific estimates.

[2] For the allocations to CA or LDCs within CA which we cannot specifically identify a conversion factor of CO2e reduced/$, we instead give the maximum feasible price per ton to achieve AB32 targets using ACES allowance revenues.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
PROGRAMS						
1	**Renewable Electricity Standard** *HR 2454, Title I, Section 101* *Scoping Plan, Recommended Actions, page 44*	20% of base[1] amount of electricity sold to customers by 2020 with up to 25% achievable via energy efficiency (or Governor can petition FERC for up to 40%). Includes: • wind • solar • geothermal • renewable biomass • biogas and biofuels from renewable biomass, marine and hydrokinetic sources • landfill gas and wastewater gas • coal mine methane • qualified hydro (new or incremental from 1988, marine, hydrokinetic) • small distributed generation (≤ 2MW) [1]Base is determined by excluding a portion of load served by: • hydropower other than qualified hydropower • new nuclear or	33% renewable energy mix statewide by 2020.	Mandatory investor owned utility Renewable Portfolio Standard: 20% by 2010. Voluntary publicly owned utility standard: 20% by 2010. Stated policy goal and proposed legislation for 33% RPS by 2020 (proposals differ in potential applicability to POUs). In 2008, IOUs delivered 13%.	California electricity providers would have to comply with both the federal RES and the California RPS.	[PG&E] Different state and federal accounting rules may complicate compliance and reporting requirements. [PG&E] Non-uniform definitions of state and federal Renewable Energy Credits may complicate compliance.

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		additions at existing nuclear • carbon capture and sequestration				
2	**Lighting and Appliance Efficiency** *HR 2454, Title II, Sections 211-214* *Scoping Plan, Recommended Actions, page 41-42*	Expanded appliance efficiency standards criteria that include GHG emissions. Specified improvements to DOE appliance standard program. National carbon labeling program for appliances. New standards for outdoor lighting, portable lighting fixtures and reflector lamps. New standards for other specified appliances. Best-In-Class Appliances Deployment Program (BICAD) gives bonus payments, bounties and awards to retailers and distributors for BIC energy efficient appliance, building	Scoping Plan sets a target for statewide annual energy demand reductions. Scoping Plan calls for: • more stringent appliance efficiency standards • broader standards for new types of appliances • improved compliance and enforcement of existing standards	Utility customer energy efficiency (CEE) programs provide incentives to encourage energy efficient appliance purchases. Utility CEE codes and standards program provides technical support for new appliance standards in California. For federally covered appliances, California is required to use U.S. EE labeling programs, implemented by the Federal Trade Commission. This program pre-empts state labeling programs.	More stringent HR 2454 appliance standards could increase EE savings for the State, for measures where federal standards currently preempt the State from advancing its own standards. California Title 20 appliance standards are same as federal standards, except where: 1) No federal standard exists, in which case California can develop a state standard; and 2) Where California has a specific exemption from federal preemption, allowing the State to implement a more aggressive standard. HR 2454 exempts California from federal preemption on several new appliances, allowing California to pursue more stringent standards for these appliances.	[E2] Independent of HR 2454, DOE (with assistance of ACEEE) plans to pursue more stringent regulation on many appliances.

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		equipment and electronic sales and for inefficient product replacement, and to manufacturers of Superefficient BIC products.			The Federal outdoor lighting standards in HR 2454 become effective 1/1/2016 and 1/1/2018, although dates are subject to change. Per HR 2454, California is exempted from preemption if it establishes a state outdoor lighting standard by 1/1/2015. BICAD program covers products not currently regulated, such as computers.	
3	**Building Energy Efficiency** *HR 2454, Title II, Section 201-204* *Scoping Plan, Recommended Actions, page 42*	National building codes that States administer: • 30% higher efficiency by 2010 • 50% higher efficiency by 2016 Cool roofs standards. Building retrofit program (REEP) that ties allowance value to local adoption and enforcement of national codes. Building energy performance labeling	Scoping Plan recommends more stringent building codes. "Zero Net Energy" target for new buildings. Financing to overcome first-cost and split incentives for energy efficiency, on-site, renewables, and high efficiency distributed generation.	California's 2007 Building Standards Codes, or "Title 24", went into effect January 2008, and the 2008 Building Energy Efficiency Standards went into effect January 2009. California has cool roofs standards. California programs retrofit measures or sub-systems within a building, but California does not have a program to retrofit entire buildings.	California would be compliant with national residential building standards in the first year, but would not be compliant with national commercial building standards until the second year. HR2454 provides funding for building labeling and code enforcement, however, the State's responsibility is that it must achieve 90% compliance with the code or show progress towards	

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		program. HUD grant program for local enforcement agencies.		Residential buildings can voluntarily rate a home's energy efficiency, but California does not have a building labeling program. Local building offices enforce building code compliance.	compliance by hiring inspectors, creating manuals providing training etc. Otherwise the state can lose funding for compliance improvement and carbon credits. Funding available, through REEP, for building retrofits in California.	
4	**Carbon Capture & Storage (CCS)** *HR 2454, Title I, Section 114-115* *Scoping Plan, A Vision for the Future, page 117*	RDD&D program to fund CCS advancement. Funds collected from Electric Distribution Utilities based on electricity deliveries, and granted for CCS development projects for coal and other fossil fuels. Funding (allowance value) to support commercial deployment of CCS. Fund subsidizes projects that capture more than 85% of the CO2 otherwise emitted. Plants would receive between $50 and $90 per tonne of CO2 sequestered, with higher amounts	The West Coast Regional Carbon Sequestration Partnership, a public-private collaboration, is assessing technologies and determining potential for storing captured CO2 in geologic formations.	Hydrogen Energy California has a demonstration project in Kern County, California. HECA received a $308 million grant from DOE through the American Reinvestment and Recovery Act.	Additional funding available to California for CCS RDD&D. California utilities, along with all U.S. utilities, will collect a fee from distribution customers to fund the CCS RDD&D program.	

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		awarded to plants that are online earlier and that achieve higher sequestration rates.				
5	**Transmission** *HR 2454, Title I, Sections 151*	Incorporates regional planning activities within FERC planning processes under Order No. 890. Establishes federal siting authority for Western interconnection projects if state authority does not act within one year or impedes a multistate project identified as needed in significant measure by one or more regional planning initiative(s).	N/A	The California Renewable Energy Transmission Initiative (RETI) is chartered to develop detailed transmission service plans with the objective of initiating the permitting process for high priority, near-term transmission projects. RETI has delivered: • A statewide renewable resource assessment of economic and environmental attributes of competitive renewable energy zones within California with some consideration of out-of-state resources. • A draft conceptual transmission plan to identify additional transmission capacity to access and deliver renewable energy to meet California state renewable goals in 2020. RETI results are being considered in the following	HR 2454 would allow for federal siting authority for multistate transmission projects included in the final regional electric plans within the Western Interconnection, such as RETI and WREZ.	[PG&E] It is unclear how the California RETI process will integrate with the regional work undertaken by the Western Governors' Association's (WGA's) Western Renewable Energy Zones (WREZ). WREZ was chartered to develop transmission plans of service for the Western Interconnection to access priority renewable resource zones.

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				processes: • The CAISO will use RETI to inform study priorities in its 2010 Transmission Plan, conducted under FERC Order No. 890. • The CPUC is considering how to use RETI results in an ongoing CPUC rulemaking to determine whether a Certificate of Public Convenience and Necessity and backstop siting authority should be granted based upon RETI results.		
6	**Smart Grid** *HR 2454, Title I, Sections 142-145*	DOE and EPA will assess benefits of including Smart Grid technology in EnergyStar products. Smart Grid information will be included in appliance energy labels and energy efficiency public information. LSEs shall set Smart Grid peak demand reduction goals, achievable through energy efficiency or demand response programs or through contracts.	N/A	The CPUC is currently considering its policies for the Smart Grid.		

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7	**Clean Energy Investment Fund** ***HR 2454, Title I, Sections 184-190***	The Clean Energy Deployment Administration, through DOE, will provide $7.5 billion in bond funding to support private capital market projects, such as clean energy technologies, energy infrastructure, efficiency technologies, and technology manufacturing.	N/A			[NRDC] As currently drafted, only large scale investments can access this financing resource.
8	**Transportation GHG Standards** *HR 2454, Title II, Sections 221, 333*	Requires that EPA use existing Clean Air Act authority to set GHG (including hydrofluorocarbon) standards for • heavy duty vehicles • marine vessels • locomotives • aircraft Requires EPA to determine if additional black carbon regulation is needed, and to regulate using existing Clean Air Act authority, if necessary. Provides authority for goods movement incentives, but no funding.	ARB is regulating certain aspects (excluding engine technology) of heavy duty vehicle CO_2 emissions – primarily aerodynamics. ARB is also relying on a 3.5 MMT per year reduction from goods movement, explicitly including federal heavy duty vehicle GHG standards. California is regulating black carbon/diesel particulate emissions. International aircraft and marine vessels are outside the scope of AB 32.	California adopted Pavley I GHG standards, which require a 30 percent reduction in vehicle GHG emissions by 2016. In 2010, ARB plans to adopt Pavley II standards for 2017 to 2025. ARB's Heavy-Duty Vehicle Air Quality Loan Guarantee Program provides funding for heavy duty vehicle retrofits.	HR 2454 does not pre-empt California standards for passenger vehicles. HR 2454, by confirming EPA's authority to regulate GHG from new trucks, vessels and locomotives, will help the State meet its annual 3.5 MMT goods movement goal. California can address other goods movement categories, such as retrofitting existing vehicles/vessels, encouraging efficient modes of transport, and ports, airports and other transportation hubs.	[ICCT] HR 2454 lacks allowance allocation or other funding that would assist with AB32 measure implementation, such as goods movement incentives and medium and heavy duty hybrids. [ICCT] HR 2454 lacks clear mandates to regulate black carbon (without preempting California), which would establish a more level national playing field.

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					California can continue efforts to reduce black carbon. Additional funding available to California for goods movement, if EPA provides incentives, as authorized. ACES does not include retrofit authority for heavy duty vehicles (HDV), nor does it pre-empt California's authority.	
9	**Electric Drive Transportation** *HR 2454, Title I, Sections 121-122* *California Assembly Bill 118, October 14, 2007*	Utilities required to develop infrastructure plans to support electric vehicles. DOE grant program to deploy and integrate electric vehicles.	Zero Emissions Vehicle Program Air Quality Improvement Program - $50 million per year to fund clean vehicle/equipment projects and research on the air quality impacts of alternative fuels and advanced technology vehicles.	AB 118 generates funding for new technologies, vehicles and fuels that reduce GHG emissions.		
10	**Fuel Emissions** *HR 2454, Title I, Sections 128 & 552*	Existing diesel emission program appropriations ($200 M annually) extended from 2011 to 2016. Prohibits EPA from considering the indirect land-use emissions	The Low Carbon Fuel Standard (LCFS) requires a reduction in the greenhouse gas intensity of California fuel by at least 10% by 2020. The LCFS allows biofuels with higher emissions due		California fuel providers would account for indirect land use emissions associated with biofuels under LCFS, but not under ACES.	[NRDC] - Changes to the renewable biomass safeguard language, and the restrictions on EPA's use of full life cycling accounting in ACES could interfere with California's implementation of its

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		associated with biofuels, for five years. Exempts existing biomass facilities from lifecycle analysis required in Clean Air Act.	to indirect land use emissions, but requires compensating reductions.			LCFS. [NRDC] In the absence of a national Low Carbon Fuel Standard (LCFS), conflicting biomass definitions for electricity and fuels could create conflicting incentives with California's LCFS, and potentially AB 32.
11	**Transportation Sector GHG Reduction Plans** *HR 2454, Title I, Section 222* *Scoping Plan, Recommended Actions, page 47*	Requires regional transportation GHG reduction plans.	SB 375 requires ARB to develop, in consultation with metropolitan planning organizations, passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035, by September 30, 2010.	SB 375 Advisory Committee		[NRDC] – Opportunities for DOT to verify that state plans achieve desired targets when certifying plans.
12	**Clean Technology Business Competition Grant Program** *HR 2454, Title I, Section 196*	Authorizes $20 million in DOE grants.	N/A			

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13	**Industrial Energy Efficiency Programs** *HR 2454, Title II, Sections 241 – 245* *Scoping Plan, Recommended Actions, page 54*	DOE to develop voluntary industrial plant EE standards. DOE rebates for efficient motors. EPA loans programs for renewable energy and energy efficiency for small and medium sized manufacturers.	Energy efficiency and co-benefits audits for large industrial sources.			
14	**Performance Standards** *HR 2454, Title VIII, Section 331*	EPA to develop performance standards for stationary sources that individually had uncapped GHG emissions greater than 10,000 tons of carbon dioxide equivalent, and that, in the aggregate, were responsible for emitting at least 20% of the uncapped GHG emissions.	N/A			
15	**Hydrofluoro-carbon (HFC) Regulation** *HR 2454, Title VIII, Section 332* *Scoping Plan, Recommended Actions, page 29*	Under Clean Air Act Authority EPA must phase down HFC consumption. Establishes closed cap and trade program, increasing auctioning over time. HFC use must decline	Discrete Early Actions to reduce HFC from: • do-it-yourself motor vehicle servicing • consumer products, including pressurized containers that utilize HFC propellants • motor vehicle air conditioning systems • refrigerants used in			

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		to 67% of baseline established by 2020, to 25% by 2030 and to 15% after 2032.	shipping containers • foam • fire suppressant systems			
MARKET						
16	**Targets and Timetables** *HR 2454, Title III, Section 311* *AB32, §38550 ARB Scoping Plan, Appendix C, pages C-16-17*	Economy-wide emission reduction goals of: • 3% below 2005 levels in 2012 • 20% below 2005 levels in 2020 • 42% below 2005 levels in 2030 • 83% below 2005 levels in 2050 Capped sector goals of: • 3% below 2005 levels in 2012 • 17% below 2005 levels in 2020 • 42% below 2005 levels in 2030 83% below 2005 levels in 2050	State goal of 1990 emissions levels by 2020. ARB will establish a 2020 cap by 1/1/2011. A preliminary estimate is 365 MMTCO2E for capped sectors, and 427 MMTCO2E for the State. In the Scoping Plan, ARB recommended a straight-line reduction trajectory between 2012 and 2020, with an adjustment in 2015 to account for the sectors added.	According to the Scoping Plan, "reducing greenhouse gas emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 15 percent from today's levels".	The State emissions target, mandated in AB32, is not superseded by current proposed federal legislation.	
17	**Offsets** *HR 2454, Title II, Sections 731-743, and Title V, Sections 501-511* *ARB Scoping*	An entity can meet 30% of its 2012 compliance obligation, increasing to 66% in 2050, using offsets. The quantity of offsets allowed into the market	In the Scoping Plan, ARB recommends a limit on offsets to no more than 49% of the required reduction of emissions from the capped sectors. (e.g. If the 2012 cap for the capped sectors is 420	Offsets are traded on a voluntary basis.	For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	[PG&E] AB 32 offset quantity limit is substantially lower than the HR 2454 quantity limit.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
	Plan, Appendix C, pages C-21-23)	in a given year cannot exceed 2 billion tons (1 billion domestic and 1 billion international, or up to 1.5 billion international, with a commensurate decrease in domestic offsets, when domestic offsets are unavailable). After 2018, 1.25 international offsets would be surrendered for 1 ton of emissions. President can recommend that Congress increase or decrease the limit. EPA must approve protocols, except in the case of domestic agriculture and forestry offset programs, for which USDA has jurisdiction. Early Action Offset Credits: 1% of 2012 vintage allowances for GHG avoided or sequestered between 1/101 and 1/1/09.	MMT, the 2020 limit on offsets is ~27 MMT (49% of the difference of 420 MMT and 365 MMT, the 2020 goal for the capped sectors.) ARB recommends no geographic limits. ARB recommends that Board approve all protocols.			
18	**Banking & Borrowing**	Unlimited banking. Unlimited borrowing	ARB recommended unlimited banking.	N/A	For 2012-2017, HR 2454 places a moratorium on State “cap and trade”	

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
	HR 2454, Title IV, Part D, Section 725	from one year into future (effectively 2-year rolling compliance period). Borrowing up to 15% of compliance obligation with allowance vintage years 2-5 beyond calendar year, at 8% annual interest (paid in allowances).	ARB recommended three-year compliance period.		programs.	
19	**Strategic Reserve** *HR 2454, Title IV, Part D, Section 726*	EPA can authorize an auction of allowances from a "strategic reserve," at a minimum price of 60%above 36-month rolling average price. One to 3% of allowances would be added to the strategic reserve each year until 2050. EPA would use auction proceeds to purchase offsets to replenish the strategic reserve. An individual entity can meet no more than 20% of its compliance obligation using strategic reserve	N/A	N/A	For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
		allowances.				
20	**Cap and Trade Moratorium** *HR 2454, Title VIII, Section 334* *ARB Scoping Plan, page 31*	Prohibits a State from implementing or enforcing a "cap and trade" program during 2012 - 2017.	ARB will "ensure that California is primed to take advantage of opportunities for linking with other programs, including future federal and international efforts" and "to demonstrate leadership in preparation for future federal and international climate action."	California's cap and trade program is planned to commence on 1/1/2012. ARB is in the midst of a cap and trade rulemaking to develop implementation details.	The Scoping Plan assumes that a portion of the state's reduction target would be met through a cap and trade program.	[NRDC] – Carbon benefits from existing state programs could be lost.
ALLOCATION						
21	**Allowance Allocation** *HR 2454, Title III, Section 781-784*	Electric LDCs (2012-2029): 43.75% declining to 7% • Allocation based 50% on sales and 50% on historic emissions. • Allowance value for benefit of retail ratepayers. • Any electric LDC cannot receive more allowances than is necessary to offset increased electricity costs due to ACES. Natural Gas LDCs (2016-2029): 9% declining to 1.8% • One third of		Allowance allocation will be determined through an ARB rulemaking process, by 1/1/ 2011. The Economic and Allowance Allocation Committee to make recommendations on allowance allocation.	For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	[ICCT] Formulas weighted based on electrical and natural gas consumption instead of overall energy consumption disadvantages California with respect to allocations. [ICCT] Distributions that subsidize fossil fuel energy costs could undercut energy efficiency and renewable energy goals. [ICCT] Allocation methodology precludes

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
		allowance value must be spent on "cost effective" energy efficiency. Small LDCs <4000 GWh (2012-2030): 0.5% declining to 0 Merchant Coal Generators (2012-2029): 5%, with ~1.5% for long term contracts Cogeneration Facilities (2012-2025): ~0.1% Home Heating Oil (2012-2029): 1.875% declining to 0.3% Low-and-moderate Incomes Families: 15% Energy-intensive, Trade-exposed Industries (2014-2050): 15% declining to 0, unless President intercedes Oil Refiners (2014-2025): 2% States for clean energy and energy efficiency				California from using allowances for incentives such as AB32 good movement incentives and measures to achieve vehicle miles travelled (VMT) goals, such as Pay-As-You-Drive pilot projects, Smart Growth planning and bicycle and pedestrian improvement projects. [NRDC] As drafted, LDCs and states have limited accountability to the federal government on the use of allowances they receive to maximize consumer benefits. ACES §783(b)(5)(E)(6)(A)(i-ii) states that an LDC cannot use emission allowances until its State regulatory authority has promulgated a regulation or completed a rate proceeding, and submitted an associated report to the EPA.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
		(2012-2050): 9.5% declining to 4.5% Electric Utilities for carbon capture and sequestration (2014-2029): 1.75% increasing to 5% Small LDCs for energy efficiency (2012-2029): 0.5% declining to 0.1% Electric Vehicles and Advanced Automobile Technology: 3% declining to 1% Clean Energy and Energy Efficiency R&D (2012-2050): 1.5% Domestic Adaptation (2012-2050): 2% increasing to 8% International Adaptation (2012-2050): 1% increasing to 4% Investment in workers (2012-2050): 0.5% increasing to 1% International Clean Technology				

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
		Deployment: 1% increasing to 4% Budget Neutrality: Unallocated allowances				
22	**Auction** *HR 2454, Title III, Section 791* *ARB Scoping Plan, Section E, pages 34, 69-71, Appendix C, pages C-19-20*	• 15% of allowances auctioned • single-round, sealed-bid, uniform price format • quarterly auction • 5% limit per entity per auction • $10 minimum reserve price, increased at 5% plus inflation per year	ARB intends to follow WCI parameters: • at least 10% of allowances auctioned in first compliance period, increased to 25% by 2020 • reserve price for the first 5% of the auctioned allowances ARB considers a transition to 100% auction to be a "worthwhile goal", consistent with the CPUC/CEC Joint Proceeding on AB 32 Implementation.	Economic and Allowance Allocation Committee to make recommendations on auctions.	For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	
23	**Distribution of Allowance Revenue** *HR 2454, Title I, Section131* *426, 480, 782(d), 789, 791* *ARB Scoping Plan, Section E, p. 70-71*	Energy Refund Program to reimburse low income households with monthly cash payments. The Strategic Reserve Fund Natural Resources Climate Adaptation Fund Climate Change	Potential uses for auction revenue, include: • energy efficiency and renewable resource development • environmental co-benefits • incentives to local governments • consumer rebates • direct refund to consumers • climate change adaptation program • subsidies to reduce cost-	Economic and Allowance Allocation Committee to make recommendations on use of allowance revenue.	For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
		Worker Adjustment Assistance Fund International Clean Technology Fund The Climate Change Consumer Refund Account (after 2026) to provide tax refunds on a per capita basis	impacts to covered industries • green technology RD&D • worker transition assistance; • state administrative costs			
24	**Exchange for State or Regional Issued Allowances** *HR 2454, Title III, Section 790* *ARB Scoping Plan, p. 34*	Entities could exchange California, RGGI or WCI allowances for federal allowances, based on average annual auction prices.	ARB committed to work to ensure that California allowances have value in a regional or federal program.		If HR 2454 begins, as planned, in 2012, there would be no effect on California entities. For 2012-2017, HR 2454 places a moratorium on State "cap and trade" programs.	
	OTHER					
25	**Clean Air Act Amendments** ***Title III, sec 811 & 834, 835***	In determining whether a source needs to apply for, or operate pursuant to, a New Source Review or Title V operating permit, EPA would not consider the source's GHG emissions.				[NRDC] Removal of existing authority under New Source Performance Review and Title V operating permits could adversely impact air quality. US EPA has reportedly developed a regulation that would instead exempt small GHG sources from

Indicates funding source.

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

		A	B	C	D	E
	Category	**HR 2454 (as passed in House)**	**AB 32 (ARB Scoping Plan)**	**Existing California Policy and Implementation Status**	**Effect on California of Concurrent HR 2454 & AB 32 Implementation**	**Additional Issues and Concerns**
						permitting, but not major GHG sources.

Indicates funding source.

TABLE 2B - ACES Funding for AB32 Categories

AB 32			
Category	**Projected Reductions (MMTs)**	**Details**	**ACES Funding mechanism**
LDV GhG Standards	31.7	Pavley Standards	*Cannot use SEED Funds for transportation efficiency*
		Develop Pavley II LDV standards	*Cannot use SEED Funds for transportation efficiency; vehicle electrification funding could contribute especially over longer-term of Pavley II standard*
Energy Efficiency	26.3	Building/appliance efficiency	SEED Funds, 32% allowances to utilities through 2025. Allowances for building code compliance to be used to fund building code adoption, implementation, and enforcement
		Comb. Heat and power +30K GWh	
		Solar Water Heating (AB 1470)	
Renewables Portfolio Standard	21.3	30% by 2020	SEED Funds, 32% allowances to utilities through 2025
Low Carbon Fuel Standard	15		
Regional Transport.-related GHG targets	5		*Cannot use SEED Funds to meet this goal except 10% of SEED funding could be used for mass transit capital spending*
Vehicle Efficiency measures	4.5		*Cannot use SEED Funds for transportation efficiency to meet this goal*
Goods Movement	3.7	Ship electrification	Cannot use SEED Funds for transportation efficiency to meet this goal
		Efficiency improvements	
Million Solar Roofs	2.1		SEED Funds
Medium/Heavy duty vehicles	1.4	HDV GHG reduction - aerodynamics	Cannot use SEED Funds for transportation efficiency to meet this goal
		M/HDV hybrid	Cannot use SEED Funds for transportation efficiency to meet this goal
High Speed Rail	1		Cannot use SEED Funds to meet this goal except 10% of SEED funding could be used for mass transit capital spending and include high speed rail
Industrial (under cap and trade)	0.3	Refinery	2% allowances to refiners but no requirement to use for emission reductions; SEED funds could be applied in part to industrial customers
		EE and Co-benefits audits	
Additional need	**34.4**		
High GWP gas measures	20.2		
Sustainable Forests	**5**		domestic adaptation 2012-21 2%
Industrial (not under cap)	1.1	Oil/gas extraction and transmission	
Recycling and Waste	1	landfill methane capture	SEED Funds
State Gov't ops	TBD		SEED Funds
Local gov't ops	TBD		SEED Funds
Green buildings	26		only for EE
Recycling and Waste	9	mandatory comm. Recycling	
		other	

Table Three: Estimated CO2 Reductions by 2020 in the State of California From Selling ACES Allowances

ACES Cap and Trade Program									
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Estimated Price per ton[1]	$13.00	$13.00	$13.00	$13.00	$13.60	$14.20	$14.80	$15.40	$16.00
Total Allowances[2]	4,603,865,000	4,521,280,000	5,073,505,000	4,977,985,000	5,454,590,000	5,348,125,000	5,242,655,000	5,136,190,000	5,030,720,000
Total Allowance Value	$59,850,245,000	$58,776,640,000	$65,955,565,000	$64,713,805,000	$74,182,424,000	$75,943,375,000	$77,591,294,000	$79,097,326,000	$80,491,520,000

SEED Fund Allowances (to California)									
SEED Funds % of total allowances	9.50%	9.50%	9.50%	9.50%	6.50%	6.50%	5.50%	5.50%	5.50%
Total $$ Allocated to All States	$5,685,773,275	$5,583,780,800	$6,265,778,675	$6,147,811,475	$4,821,857,560	$4,936,319,375	$4,267,521,170	$4,350,352,930	$4,427,033,600
% Allocation to CA	7.00%								
Total $$ Allocated to CA SEED	$398,004,129	$390,864,656	$438,604,507	$430,346,803	$337,530,029	$345,542,356	$298,726,482	$304,524,705	$309,892,352
Total $$ Allocated to CA SEED, 2012-2020	$3,254,036,020								

SEED % Allocations by Area (mandated by legislation - all % are minimum values except "state discretionary")	
Energy Efficiency	20.0%
RE Financial mechanisms	20.0%
Local gov't to distribute to above categories	12.5%
State discretionary distribution to above categories	47.5%

Conversion rate of $$ to GHG reductions		
Energy Efficiency, Electric	$/annual kWh avoided	$0.25
	annual kWh avoided/$1	4.00
	lbs CO2/kWh	0.82
	Tons CO2/kWh	0.000372
	Tons CO2 avoided/$1:	**0.001488001**

CA Energy Efficiency Allowances	$79,600,826	$78,172,931	$87,720,901	$86,069,361	$67,506,006	$69,108,471	$59,745,296	$60,904,941	$61,978,470
CA Total Energy Efficiency Allowance Value, 2012 - 2020	$650,807,204								
CA RE Financial Mechanisms allowances (required)	$79,600,826	$78,172,931	$87,720,901	$86,069,361	$67,506,006	$69,108,471	$59,745,296	$60,904,941	$61,978,470
CA Total RE Financial Mechanisms Allowance Value, 2012-2020	$650,807,204								
CA Local Gov't to distribute to above categories	$49,750,516	$48,858,082	$54,825,563	$53,793,350	$42,191,254	$43,192,795	$37,340,810	$38,065,588	$38,736,544
CA Total Local Gov't Allowance Value, 2012-2020	$406,754,503								
CA State Discretionary distribution to above categories	$189,051,961	$185,660,712	$208,337,141	$204,414,732	$160,326,764	$164,132,619	$141,895,079	$144,649,235	$147,198,867
CA Total State Discretionary Allowance Value, 2012-2020	$1,545,667,110								

Addition Allowances to SEED funds for EE (retrofits and new buildings)									
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
% of total allowances	0.55%	0.55%	0.55%	0.55%	0.55%	0.55%	0.53%	0.53%	0.53%
% Allocation to CA (same as above)	7.00%								
CA Additional EE Allowances	$23,042,344	$22,629,006	$25,392,893	$24,914,815	$28,560,233	$29,238,199	$28,786,370	$29,345,108	$29,862,354
CA Total Additional EE Allowance Value, 2012-2020	$241,771,323								

Allowances to Other Entities									
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Electric LDCs - Allowance % of total (see 4)	44.25%	44.25%	39.39%	39.39%	35.50%	35.50%	35.50%	35.50%	35.50%
CA allocation by formula	6.00%								
(versus other forms of consumer relief)	25.00%								

GHG reductions by CA electric utilities[3]	0.66%	0.66%	0.59%	0.59%	0.53%	0.53%	0.53%	0.53%	0.53%
CA Allowance Value spent on GHG reductions by electric utilities	$397,256,001	$390,129,948	$389,698,456	$382,361,517	$395,021,408	$404,398,472	$413,173,641	$421,193,261	$428,617,344
CA Total Allowance Value spent on GHG reductions by electric utilities, 2012-2020	$3,621,850,047								
CA Electric Utility GHG Reductions, 2012-2020 (MMT)	5.4								
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Natural Gas - Allowance % of total	0%	0%	0%	0%	9%	9%	9%	9%	9%
CA allocation by formula	10%								
% spent on GHG reductions (versus other forms of consumer relief)	25.00%								
GHG reductions by CA natural gas entities	0.00%	0.00%	0.00%	0.00%	0.23%	0.23%	0.23%	0.23%	0.23%
CA Allowance Value spent on GHG reductions by natural gas	$0	$0	$0	$0	$166,910,454	$170,872,594	$174,580,412	$177,968,984	$181,105,920
CA Total Allowance Value spent on GHG reductions by natural gas, 2012-2020	$871,438,363								

Projected quantifiable GHG reductions from LDC EE programs, 2012-2020	5.4	Projected money mandated for state EE/RE programs, 2012-2020	$3,495,807,343
		money from Natural Gas EE programs, 2012-2020	$871,438,363
Estimates of GHG reductions from ACES Allocation money (using known conversion factors) in MMT:	**5.4**	**Additional Money (2012-2020) from ACES Allocations to be used towards GHG reductions:**	**$4,367,245,706**

Notes:

[1] Linear projection from EPA estimates of $13 in 2015 and $16 in 2020. See Scenario Analysis for other market price estimates.

[2] Given in ACES bill, subtracting .05% allocation to Indian Programs

[3] See Scenario Analysis for different estimates on what percent of allowances LDCs/Natural Gas providers will use towards energy efficiency (versus other customer rebate programs).

[4] This number includes the 43.75% (and declining) allocated to large LDCs and .5% allocated to small LDCs

Table 3B – Modeling the effect of ACES on the AB32 Scoping Plan: Sensitivity Analysis

HR2454 offers hard numbers as well as uncertain values. Our goal with this model was to identify a range of "revenues/ton" values that California would have available to recoup the shortfall caused by the ACES moratorium on state cap and trade programs. We wanted to model what a "closed loop" scenario would look like: the shortfall is caused by ACES effects on AB32, and the money used to address the shortfall is provided by ACES allowances under the federal cap and trade program. In the model, we use empirical data to predict how many tons the electric utility will reduce using its free allowances (and do analysis on many variables that are part of this prediction). We then identify the money flows coming into California through ACES, either directly to the state or through natural gas providers. "Revenues/ton" is the total amount of money available to California through ACES for GHG reductions, divided by the number of tons needed to recoup the remaining shortfall.

We assume that CA loses all 34.4 MMT when the federal program replaces the state program. It is highly unlikely that this will occur, as the same sources are capped under both programs. However, we note the possibility that, due to California's previous efforts and energy efficiency, the cost of reducing versus buying may lead California capped entities to be overall purchasers of emissions credits, rather than reducers. Our model was not sophisticated enough to project how much of the 34.4 MMT would be achieved under the federal program, so we are assuming the worst-case scenario.

We also assume that there is as much energy efficiency available at a fixed price as there is money available to spend on efficiency. The actual cost for efficiency would depend upon the policy under which funds are governed, and the efficiency measures actually available after 2012, which in turn depends upon the "scalability" of current technologies and uncertain availability of technology advancements.

This is a single-variable analysis using baseline values that we identified as reasonable assumptions or the mean value of reasonable assumptions.

Uncertain Variables

We chose 5 key variables of uncertain value from 2012-2020:

"% Allocations"	% of total allocations awarded to the CA SEED program

"Market price"	the cost on the market of a ton of CO2 for every year from 2012-2020
"CO2 content"	the amount of CO2 per kWh produced for the state (on the margin), assuming all natural gas peakers
"% LDC/NG allocations"	the percentage of allowances that utilities and natural gas providers spend on GHG reductions versus other customer relief measures
"$/kWh"	The cost of reducing 1 kWh through energy efficiency

Baseline Values

Below we've listed our baseline values. While we vary one of the variables to see its effect on the cost/ton for CA, the rest will remain constant at these values. At these values, we project that CA LDCs will reduce GHG emissions by 5.4 MMT, and the state will have roughly $4.37B available to recoup the remaining 29 MMT. This figures to be $151 available for every ton of reductions.

% Allocations	7%	Mean of calculated estimate using Census and State Energy data (7.5%) and actual % of same allocation regime from previous legslation (6.5%)
$/kWh	$0.25	NRDC estimate for CA
CO2 content	0.82	7000 btu/kWh (on the margin - natural gas) at 117 lbs. CO2/million btu
% utility allocations	25%	
Market price	$13-16	EPA projection

Revenues/ton:	$151

Variable Analysis: Results

Below are the results of our single variable analysis. The inputs are listed on the left; the resulting price/ton requirement to recoup the reduction shortfall is on the right.

% Allocation	Revenues/ton
6%	$133
6.50%	$142
7%	$151
7.50%	$159
8%	$168

$/kWh	Revenues/ton
$0.50	$138
$0.40	$141
$0.33	$144
$0.25	$151
$0.20	$158

% LDC/NG allocations	Revenues/ton
0	$102
10	$119
20	$139
25	$151
30	$163
40	$190
50	$222
60	$260
70	$307
80	$366
90	$442
100	$544

Carbon content of a kWh saved (lbs/kWh)		Revenues/ton
0.82	7000 btu/kWh @ 117 lbs CO2/million btu	$151
0.97	8300 btu/kwh @ 117 lbs CO2/million btu	$156
1.05	9000 btu/kwh @ 117 lbs CO2/million btu	$159

Market Price of one ton	2012	2013	2014	2015	2016	2017	2018	2019	2020	Revenues/ ton
Floor Price every year	$10.00	$10.50	$11.00	$11.55	$12.00	$12.60	$13.00	$13.65	$14.00	**$126**
EPA Projection	$13.00	$13.00	$13.00	$13.00	$13.60	$14.20	$14.80	$15.40	$16.00	**$151**
Mid-Low	$12.00	$13.00	$14.00	$15.00	$16.00	$17.00	$18.00	$19.00	$20.00	**$177**
Mid-High	$15.00	$16.88	$18.75	$20.63	$22.50	$24.38	$26.25	$28.13	$30.00	**$273**
High	$20.00	$25.00	$30.00	$35.00	$40.00	$45.00	$50.00	$55.00	$60.00	**$653**

Summary of Analysis

Our baseline assumptions produced an estimated value of $158/ton that California would have available to achieve reductions necessary to meet AB32. We found that "% allocations", "kWh/$", and "CO2 content" all only marginally affected the final CA price/ton. The range of values went from $133-$168 per ton of GHG reductions. The more influential variables, "% LDC/NG allocations" and "market price", affect the

price/ton result more because of their large scale. As the values vary across these variables, we get a range of values from $102-$653 revenues available per ton of GHG reductions. Market price is the largest factor in how much money California will have to devote to reductions.

An analysis of all the variable values that contribute to lower prices per ton requirements (but using the baseline market prices) produce a "worst-case scenario" of $87/ton. This includes 0% of LDC allocations being used for reductions.

Without accounting for the feasibility of achieving energy efficiency reductions at these levels, an analysis of all the variable values that contribute to higher, more favorable prices per ton requirements (but using the baseline market prices) results in utilities meeting all of the 34.4 MMT reductions. This includes 100% of LDC allocations being used for GHG reductions. Again, we did not examine the cost or feasibility of these assumptions.

These analyses are not meant to be policy suggestions. They are meant to illustrate the feasible range of revenue/ton values that California may encounter if ACES is implemented as passed by the House. For most of the variables, we identified sensible high/low values to act as border cases. We explored the entire spectrum for "% LDC/NG allocations" because the market forces that will decide that percentage are so unpredictable.

Using the model

We intend for this model to be used as future legislation is changed, or as a basis for building other analyses on top of.

To run your own analyses, use our model, "ETAAC Model – HR2454 and AB32 Scoping Plan", to input your values for the variables into the yellow boxes. Possible variables are the shortfall caused by ACES ("Carbon Analysis" Sheet) and the variables listed in this document ("Calculations" sheet). There are other values considered "constants" in our model that may change in legislation or that further research may amend. These too, can be modified.

The final result, "price/ton", is displayed at the bottom of the "Carbon Analysis" sheet.

Direct any questions to Bob Epstein at bob@bobepstein.to

OFFSETS

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

Category	HR 2454 (as passed in House 6-26-09)	AB 32, CARB Scoping Plan, and CAR Protocols	Implications for California	ETAAC Issues
ABBREVIATIONS and NOTATIONS	**Title VII, PART D:** Offsets **PART E:** Reduced Deforestation – Int'l **TITLE V—**Agricultural and Forest domestic offsets **et al.** ***Note**: Some ambiguities in ACES language*	**ARB = California Air Resources Board** **SP** = **Scoping Plan** for AB 32 **WCI** = **Western Climate Initiative**: CA is member state **CAR** = **Climate Action Reserve:** National voluntary offset Registry **CRTs** = **Climate Reserve Tonnes**= carbon offset credits issued by CAR **GHG ETS** = Greenhouse Gas Emission Trading system (generic) **MOU** = Governors' Sub-national MOU for International Cooperation and Offsets ***Note:** ARB is still in design process for a GHG Emissions Trading Market and has not specified if and how CAR Offset Protocols and CRTs might be incorporated into a state program*		
OFFSET QUANTITY: SYSTEM				
QUANTITY AUTHORIZED **§722 (d)**	2 billion tons of offsets allowed annually: Domestic: 1 Billion Mt CO2e/yr Internatn'l: 1 Billion Mt CO2e/yr -EPA Administrator can increase Int'l offsets to 1.5 BMt if available domestic offsets less than 0.9 billion tons at prices generally equal to or less than emission allowance prices (C) Total offsets may be increased or decreased by Presidential recommendation to Congress	**SP:** Offsets in Scoping Plan pegged to WCI market design: = *"... no more than 49% of the total emission reductions from 2012-2020 in order to ensure that a majority of emission reductions occur at WCI covered entities and facilities.*" (WCI, 2008) **SP:** " ..*While some offsets provide benefits, allowing unlimited offsets would reduce the amount of reductions of greenhouse gas emissions occurring within the sectors covered by the cap-and-trade program* (p.37) "... *(The WCI) limit will help provide balance between the need to achieve meaningful emissions reductions from capped sources with the need to provide sources within capped sectors the opportunity for low-cost reduction opportunities that offsets can provide."*	Offsets offer a low-cost compliance option and could a have strong impact on cost containment for CA emission sectors, especially in early years. EIA analysis of ACES (8/09) also indicates: *"… compliance with emissions caps that is generated through offsets could exceed actual reductions in covered emissions.."* California emissions sectors will be affected by uncertain availability and quality of offsets, esp. in early years. CBO (6/09) estimates US demand at: *Domestic offsets*: ~230M allowances 2012 ~300M allowances 2020 *International offsets*: ~190M allowances 2012 ~340M allowances 2020. In contrast: over 4 years CDM has delivered a total of ~277 MMt US EPA analysis of ACES (June 2009) indicates that offsets have a strong impact on cost containment" and without	**SEE SUMMARY ISSUES TABLE**

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			international offsets, the cost of compliance would be 89% higher. -Int'l Forest Sector will not likely be prepared to issue credits in quantities req'd by 2012. Possible EUETS and probable Australia et al. competition for limited supply.	
OFFSET QUANTITY: ENTITY				
ENTITY OFFSET LIMIT **§722**	Covered entities collectively may use offset credits up to a maximum of 2 billion tons/yr Demonstrating compliance using offset credits: Pre-2018: 1 domestic credit =1 int'l credit. Post-2018: 1 domestic credit = 1.25 int'l credit. -Pro rata share of 2 B tons: Percentage of allowances to be held to demonstrate compliance for given calendar year determined by "dividing 2 billion by the sum of 2 billion plus the number of emission allowances for the previous year, and multiplying by 100" -*This calculates to:* 30% in 2012; 30% in 2020; 35% in 2030; 45% in 2040; 66% in 2050 - Not more than 1/2 may be domestic and 1/2 internat'l offsets, except as modified by EPA Administrator 722(d)(1)(B)	**SP:** pegged to WCI limits <u>Offset limit per entity/yr:</u> approx. = <5% per entity, based on WCI market design and estimate of number of emitters and allowances	Limiting access to offsets raises cost of compliance for CA emission sectors, but may drive more reductions in covered emissions. Assuring availability of offsets in early program years is of particular concern.	

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	Term Offset Credits: Entity may use term credits instead of domestic offset credits to temporarily demonstrate compliance. - Combined quantity of term and domestic credits shall not exceed quantity of domestic credits entitled for the year. -***Financial Assurance req'd***: Entity using term offset credits must provide financial assurance that entity will have sufficient resources to obtain allowances or credits necessary to demonstrate final compliance. EPA Administrator to issue regulations.			
DOMESTIC OFFSETS				
PRE-EXISTING OFFSET PROGRAMS: Grandfathering				
RECOGNITION OF EARLY ACTION PROGRAM **§740, 734**	*Note: Some unclear language in ACES* Conditions for approval of Pre-existing programs: -Program estab'd by law or regulation prior to Jan. 1, 2009; or program meets same criteria. Program criteria: Program has: -developed offset project standards, methodologies and protocols through public consultation process or peer review process -made publicly available standards, methodologies and protocols requiring that credited reductions are permanent, additional, verifiable and enforceable -required verification by State or tribal agency or accredited 3rd party verification body -no conflict of interest for entities	CA grandfathering provisions for Emissions Reporting do not include the CAR Offset standards, which were developed for the Voluntary Market. Since the national CAR offset program is "*…focused on ensuring environmental integrity of GHG emissions reduction projects to create and support financial and environmental value in the U.S. carbon market",* and since the ARB has adopted certain CAR Protocols as Discrete Early Action under AB 32, it is probable that CAR Protocols will be given serious consideration as a foundation for compliance-quality offsets in the design of a California GHG Emissions Trading market. As a reference, the CA Grandfathering provisions for early action GHG reporting and reductions (i.e. not CRTs) are included here: **AB 32:** "*Ensure that entities that have voluntarily*	**CAR appears to meet all ACES tests for a pre-existing program**. -ARB has designated certain CAR Protocols as "Discrete Early Action for Vol. Market" under AB32 -Unclear whether other early action programs (e.g. CCX, Am.C.Registry, VCS) will be grand-fathered under "equal stringency" test or other . - Accepting CAR program and protocols on same basis as others may not reflect CAR high standards and could reduce exchange value of CAR CRTs.	**SEE SUMMARY ISSUES TABLE**

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	administering the program Other programs: EPA Administrator "... ***shall*** *approve any such* ***program*** that Administrator determines has criteria and methodologies **of at least equal stringency…** (740 (e)(2)). Administrator ***may*** approve ***types of offsets*** from approved programs -Administrator to give ***due consideration*** to existing methodologies for offset projects.	*reduced GHGs prior to* (…Jan.1,2011) *receive appropriate credit for early voluntary reductions*" (HSC 38562(b)(3) **CCAR 2001:** *"… CA to offer .. best efforts to ensure that CA Registry members receive appropriate consideration for early actions in light of future state, federal or international GHG regulatory programs*". **AB 32:** For a CA state market, formal ARB recognition needed: "*Offsets used to meet regulatory requirements must be quantified according to Board-adopted methodologies, and ARB must adopt a regulation to verify and enforce the reductions* (HSC §38571).		
EXCHANGE VALUE FOR EARLY ACTION CREDITS §782 (t), 795	*Note: Some unclear language in ACES* Exchange value for Offsets: Early Action Credits issued from 2009–2012: can be exchanged 1:1 for Offset Credits and used for compliance purposes Early Action Credits issued from 2001–2008: Receive emission allowances in an amount equal to the average value of the credits from 2006-2009 795 (a)(1) 1 percent of emission allowances is allocated for exchange of early action credits (in 2012). Exchange must occur within 3 years of enactment or regulations.		**ACES appears to honor full exchange value for CAR CRTs:** CRTs issued from 2009–2012 can be exchanged 1:1 for Offset Credits and be used for compliance purposes CRTs issued from 2001–2008: will receive emission allowances in an amount equal to the average value of early action credits from 2006-2009 (795 (a)(1)) **Clarity needed**: to ensure term "average value" applies to Early Action Credit value within a specific offset and program type, and not across programs of different rigor. e.g. Avoid possible interpretation: CAR CRT ~$10/ton vs. CCX ≤$1-2/ton =avg. ~$5 if req'd to mix together in a basket of "early action offsets", potentially	

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			diminishing CRT value.	
OFFSET ADMINISTRATION and ADVICE				
AGENCY JURISDICTION	Two offset programs established: **EPA:** Title VII: **GHG Emission Reductions** (Domestic Non-forestry and Agricultural offsets; International offsets including forestry) **USDA:** Title V: **Domestic Agriculture and Forestry Offsets**	**CAR** is single organization which ensures a common approach and rigor for all offset protocols and procedures. CAR is a"*Nat'l non-profit entity to ensure integrity, transparency and financial value of offsets in U.S. carbon market*". Has established reputation for high-quality standards.	**Conflicting protocols bet. CAR and 2 federal agencies could affect offset integrity and marketability** Uncertain offset quality from non-parallel standards and procedures for EPA and USDA	**SEE SUMMARY ISSUES TABLE**
EPA: **OFFSET REGISTRY** **§732**	EPA Administrator shall establish an Offset Registry	**CAR** already operates highly-respected offset Reserve (i.e. registry) with North American scope. CAR CRTs are currently sold in the Voluntary Market. - CAR tracks and retires credit transactions by serial number and vintage in publicly-accessible system Standards for CAR offsets: *"The protocols are created through a comprehensive, transparent public process with participation from multiple stakeholders. The Reserve has established a reputation for creating regulatory-quality protocols to ensure the offsets issued are real, permanent, additional, verifiable and enforceable."* www.climateactionreserve.org	**Indicates CAR pre-compliance functions will be replaced by a national compliance offset registry.** **Option for CAR** to remain as a test center for new protocol development and continuation of voluntary market. Will impact CAR members if ACES does not provide for a transition period post-2012 to accommodate transition of CAR members to the federal system and to integrate protocols.	
EPA ADMINISTERED OFFSETS (Non-domestic forestry and agriculture)				
EPA: **AUTHORITY of**	*Within 30 days*: - Establish ***Offsets Integrity Advisory Board***			

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EPA ADMINISTRATOR §731, 732	*Within 2 years*: - Establish program for issuing offset credits -Consult with appropriate Federal agencies; consider recommendations of advisory Board -Periodically revise regs. as necessary.			
EPA: **"Offsets Integrity Advisory Board"** §731	Board advises on project types, methodologies, scientific uncertainty for all offset types *except agriculture and forestry* - 9 Members appointed by EPA Administrator - "…qualified by education, training, and experience to evaluate scientific and technical information…" - *Report*: By 2017 and every 5 yrs., scientific review of offset and int'l deforestation reduction programs.	For every new protocol, CAR establishes a workgroup and holds public meetings to capture scientific and technical input from stakeholders knowledgeable on the topic area. CAR review process addresses project types, methodologies and scientific analysis CAR is non-profit entity with Board of Directors, currently chaired by Sect'y CalEPA. Protocols are approved by an independent 13-member Board.	California has not yet set standards for offset quality. Federal and State standards could differ.	**SEE SUMMARY ISSUES TABLE**
EPA: **LIST OF ELIGIBLE OFFSET PROJECT TYPES (non-Agriculture and Forestry) 733**	*Within 1 yr*. EPA to: - Establish initial list of eligible project types including international offsets - Give priority to Adv. Bd. recommendations and justify discrepancies *Within 2 yrs:* Establish additional list of offset project types. Modification of eligible projects**:** -Administrator *may add or remove* project types from the initial list through rule after consultation with Fed. Agencies and Advisory Bd. -Modifications may be proposed by	**Eligible Project Types CAR**: CAR identifies potential projects based on the ability to measure and verify reductions along with potential volume of reductions. Protocols are developed through stakeholder participation, technical and scientific review. Protocols are approved by independent Board of Directors. **Future Protocol Potential per CAR:** www.climateactionreserve.org (9/09) **Adopted Protocols**: -Forestry; Urban Forestry; - Landfill methane: US; Mexico; - Livestock methane: US; Mexico. **Protocols in Process** -Coal Mine Methane -Ozone Depleting Substances	**Uncertainty** whether ARB will adopt CAR protocols into a California mandatory climate program. - Will take time to develop new protocols for EPA and USDA for a federal GHG ET system**.** - Differing federal standards and process will affect offset integrity and cap: **EPA:** -- Eligible project types to be identified based on scientific and technical advice -Administrator may add or remove from list **USDA**:	**SEE SUMMARY ISSUES TABLE** .

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	Advisory Bd., Administrator and any person per a petition process	-N2O from Nitric Acid Plants -Organic Waste Digestion **Future Protocol Development: Promising** - Boiler Efficiency Improvement **Limited US Potential:** - Blended Cement Production: likely to become capped sector **Standardized Protocol Difficult; possible limited potential:** - Bus Fleet Upgrades **Not Promising in US** - Bus Rapid Transit **Issue Paper not completed or consideration is pending further research**: - Methane Avoidance from composting - N2O reduction in Acid Plants - Soil Sequestration – Cropland and Rangeland: Key methodological issues related to permanence - Truck Stop Electrification **Not ready for Protocol Development:** -Tidal Wetland Restoration: difficulty in baseline and additionality quantification	-Project list specified in legislation Sect'y may revise but not remove from list	
EPA: **METHODOLOGY and CRITERIA FOR OFFSET CREDITS** **733; 734**	Administrator to establish methodologies for each project type - Additionality: not begun before Jan.1,2009 *except earlier* if activity readily reversible; - Required: Activity Baseline, Quantification Methods, Leakage, Permanent Offset credits issued to projects that -result in reductions or avoidance of emissions or sequestration of GHGs. - Credits to be verifiable and additional -Offset credits for sequestration to be	SP: "... *offsets will be subject to stringent criteria and verification procedures to ensure their enforceability and consistency with AB 32 requirements."* (p.30) **SP:** Criteria for offsets: Real, additional, quantifiable, permanent, verifiable, enforceable **CAR**: Protocol standards are explicit for each project type: Real, additional, permanent, verifiable, address leakage etc.	CAR Protocols for Voluntary Market provide explicit criteria and methodologies. Buyers appear to recognize more rigorous CAR standards as reflected in price for CAR CRTs which receive among highest value on voluntary market.	

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	permanent. Includes destruction of methane, chlorofluorocarbons or other ozone depleting substances, if permitted by Administrator			
EPA: **CREDITING PERIOD** **734 c(2)**	**Crediting period**: - No less than 5 yrs - No greater than 10 years for any project type other than those involving sequestration. See: 20 yr for forestry projects (USDA 504) **Project Renewal**: Can petition for new crediting period subject to new methodologies and project type. Administrator: - may limit number of new crediting periods -to apply conservative assumptions to maximize certainty that environmental integrity of cap is not compromised.	**CAR:** Most projects registered with the Reserve, have a 10-year non-renewable crediting period (e.g. methane projects) . For forest projects, the crediting period is 100 years.	**CAR:** Comparable concept to ACES for non-reversible (e.g. methane) offsets. Different concepts for reversible (e.g. forest and agriculture) offsets due to concern for permanence. CAR has not adopted agricultural protocols pending further research. CAR Forest Protocols offer a Permanent CRT reinforced by a 100 yr. crediting period. Unclear how proposed federal standards will align with stringency and explicitness of CAR protocols . .	
EPA: **PERMANENCE 734**	**Permanence:** "…any sequestration with respect to which an offset credit is issued under this part results in a permanent net increase in sequestration…" **ACES** does not define the length of time that an emitted ton must be offset for, i.e. no time duration specified for a "permanent net increase in	**CAR** sets Permanence standard based on IPCC guidance of 100 yrs. as life cycle of an emitted ton of CO2 in the atmosphere. *See also: USDA re: Ag and Forest project types; term crediting*	**CAR** offsets from reversible project type (forests) are based on explicit 100 year permanence standard. Explicit CAR standard has resulted in higher CRT value on voluntary market.	**SEE SUMMARY ISSUES TABLE**

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	sequestration". EPA Administrator to establish requirements to account for and address reversals.			
EPA: **OFFSET RESERVE 734 (3)**	Administrator to subtract and reserve quantity of offset credits based on risk of reversal. Reserved credits held by Administrator and registered in Offset Registry. Other insurance methods authorized.	**CAR:** Comparable requirements for Buffer Reserve of CRTs required from project developer. Quantity based on risk of reversal.	**CAR:** Comparable concepts based on risk of reversal	
EPA: **ACCOUNTING FOR REVERSALS 734 (b)**	Reversals must be reported **Intentional reversal:** 1:1 Restore to reserve, credits or allowances equal to number cancelled. **Unintentional reversal**: ½: 1 Restore to reserve, credits or allowances equal to one-half number of credits reserved or cancelled, whichever is less.	**CAR:** **Voluntary Reversal:** Compensation based on age of project, e.g. Forest Mgmt Vers. 3.0: 0-5 yrs =1.40 >50yrs =1.00 **Unavoidable Reversal:** Covered by req'd Buffer Pool credits	**CAR reversal standard more stringent** Additional measures req'd beyond 1:1 replacement for reversals e.g. PIA= Project Implementation Agreement	
EPA: **VERIFICATION OF OFFSET PROJECTS** **736**	Project developer to submit report prepared by an accredited third-party Administrator to specify required components of a verification report for offset project. Verification report shall Include: quantity of GHGs reduced; methodologies; certification that project meets requirements; compliance with conflict of interest requirements	CAR Verification Protocol references ANSI ISO 14065 standards and requires in addition: -CA specific training -Compliance with CA Verification Protocols -Annual site visit -Right for CAR to request independent observation visits	**CAR exceeds** ANSI stds. for Verification	
EPA: **VERIFIER ACCREDITATION 736**	Administrator to accredit third-party verifiers as professionally qualified; no conflicts of interest.	CAR has requirements additional to ISO 14065 - CAR-specified training and accreditation	**CAR exceeds** ANSI stds. for Verification Bodies	

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	736 (d) Administrator may accredit: -ANSI (American Nat'l Stds. Institute 14065) -Separate EPA Accreditation process			
USDA ADMINISTERED OFFSETS: Domestic Agriculture and Forestry				
USDA: **UNCAPPED SECTORS 501**	Forestry and Agriculture explicitly excepted from definition of "capped sector"	**SP, WRI, CAR**: Comparable exception	Suggestions to place agriculture and forestry under a cap are not currently accepted by any domestic or int'l body	
USDA: **SECRETARY DUTIES 502, 503**	*Within 30 days :* Establish Advisory Committee *Within 1 yr:* --Establish offset credit program for domestic agriculture and forestry sources. -Establish methodologies for each practice type in 503	**CAR:** All offset types held to same review criteria and process. Domestic agriculture and forestry offsets not under separate jurisdiction**.**	**Potential for conflicting standards** and quality of offsets bet. EPA and USDA means uncertainty for CA emission sectors on availability and pricing of offsets. Standards for EPA and USDA differ re: authority of Secretary and Administrator; presumptive eligibility of offset project types; offset standards and rigor; public procedures	
USDA: **OFFSET CREDIT PROGRAM**	Sect'y USDA to establish by rule: -Methodologies for quantifying GHG benefits; activity baselines and additionality; leakage; reversals; third-party verification; technical assistance to offset project developers using Conservation Operations account; approval of offset project plans; -Certificat'n; reporting and record keeping; audits.	**SP:** References Offset standards of WCI **WCI**: Member states to adopt standards equal to or more stringent than WCI	**Uncertainty**: Process and standards for agriculture and forestry offsets are delegated to future rulemaking by USDA e*xcept for* specified list of offset project types.	

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USDA: **ADVISORY COMMITTEE " *Greenhouse Gas Emission Reduction and Sequestration Advisory Committee*" §531**	Comparable to EPA "***Offsets Integrity Advisory Board***" -Provides sci. and tech. advice to Sect'y on domestic agriculture and forestry offsets -9 members "**..**qualified by education, training, and experience to evaluate scientific and technical information**...**" - 3 year terms except for initial 5 yr. stagger. May reappoint once for 3-yrs; directly after first term. *Report*: Scientific review of offset program by 2017 and at 5-year intervals	CAR: single agency provides function (*see EPA 731 above)*		
USDA: **LIST OF SPECIFIED OFFSET PRACTICE TYPES: 503 (b)** **1) Domestic Agriculture**	*Unclear*: if USDA list of project types is eligible "per se", or if the list is illustrative, per "..such as" "*At a minimum, the list ... **shall include** those practices that avoid or reduce greenhouse gas emissions or sequester greenhouse gases**, such as***": **AGRICULTURE:** Agricultural, grassland, and rangeland sequestration and management practices: -Altered tillage practices; -winter cover cropping, continuous cropping, other means to increase biomass returned to soil in lieu of planting followed by fallowing; -reduction of nitrogen fertilizer use or increase in nitrogen use efficiency; -reduction in frequency and duration of flooding of rice paddies; -reduction in C emissions from organic soils;	**CAR** has investigated a number of agricultural offset project types but has not developed protocol due to concern for quality and permanence. Most agricultural offset activities are -short term C storage -easily reversible -difficult to quantify and verify. CAR is pursuing further research to identify possible opportunities. *(See list of adopted CA Protocols under EPA 733)* **Agricultural activities considered by CAR but not adopted:** -*Soil Sequestration for Range and Cropland*: issues of permanence; awaiting further research. -*Tidal Wetland Restoration*: awaiting further science for quantification	ACES list appears to assume scientific and technical validity of specified offset types. Potential for conflict between CA and Federal standards if ACES authorizes offset types that are still under research by CAR. Difficult to remove USDA project types even if do not meet credible offset standards.	**SEE SUMMARY ISSUES TABLE**

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	- reduction in GHG emissions from manure and effluent; -reduction in GHGs due to changes in animal management practices, including dietary modifications			
USDA: **2) Domestic Forestry** **503**	**FORESTRY AND LAND USE CHANGE:** Afforestation; reforestation; forest management resulting in an increase in forest carbon stores including but not limited to harvested wood products; management of peatland or wetland; conservation of grassland and forested land; improved forest management, including accounting for carbon stored in wood products; reduced deforestation or avoided forest conversion; urban tree-planting and maintenance; agroforestry; adaptation of plant traits or new technologies that increase sequestration by forests;	**CAR Forestry Protocols** project types include: -Reforestation -Forest Management -Avoided Conversion -Urban Forestry **Forest activities considered but not adopted**: -Afforestation -Agroforestry -Conservation of grassland -Adaptation of plant traits or genetic modifications to increase rate of sequestration	**Concern for quality:** Federal list includes practices not accepted by California due to environmental impacts or lack of durable C storage	
USDA: **3) Manure Management and Disposal**	Eligible activities include: -waste aeration; -biogas capture and combustion; and -application to fields as a substitute for commercial fertilizer.	**CAR:** comparable protocols for Methane only. e.g. -Livestock: US; and -Livestock: Mexico Nitrous oxide emissions not measured because high levels of uncertainty associated with the methods to assess nitrous oxide production could lead to overestimates of project reductions.	Comparable provisions for methane capture and destruction	
USDA: **MODIFICATION of ELIGIBLE PROJECT LIST 503 (c)**	List of eligible offset project types is specified in ACES Sect'y may *"add to or revise",* but not *remove* projects types from list (unlike EPA)	**CAR**: Eligible project types identified through public process, w/ scientific and tech review and stakeholder participation	*See comment above: 503(b) List of Specified Project Offset Types.*	

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USDA: **CREDITING, and TERM OFFSET CREDITS** **504 (d), 507, 722** *(see also EPA 734 (c) (2))*	**FULL OFFSET CREDIT:** Crediting period to have a term up to =5 years for agricultural sequestration practices; =20 years for forestry sequestration practices; and =10 years for other practice **Implied from ACES**: 1 ton from 20 year Forest project/yr = 1 offset credit/yr = Full Compliance with offset obligation/yr. But unspecified: For how many years must an emitted ton be offset by a reversible project type? **TERM CREDIT:** Term Credits apply only to projects of 5 years (per 504(d)) USDA Secretary to issue term offset credits, in lieu of an offset credit, for each ton CO_2e that has been sequestered. **Financial assurance:** Covered entity cannot use Term Credit for compliances purposes unless it *"…simultaneously provides to the Administrator financial assurance that, at the end of the term offset credit's crediting term, the covered entity will have sufficient resources to obtain the quantity of allowances or credits necessary to demonstrate final compliance* "722(d)(2)(E)	**CAR** does not recognize Term Offset Credits **CRTs** are full credits Under term credits, C can be re-emitted at end of term.	Uncertainty: Different approaches to Term Credits at state and federal level .	**SEE SUMMARY ISSUES TABLE**
USDA: **OFFSETS RESERVE**	Silent for USDA: Delegated to rulemaking Explicit for EPA	**CAR** Forest Protocols (3.0) -Lower risk rating assigned if Conservation Easement is placed on property.	Possibility of different standards bet. USDA, EPA and California.	

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and **ACCOUNTING FOR REVERSALS**		-Project Implementation Agreement (PIA) req'd. -Reversals must be reported and quantified. -If reversal occurs, restitution of equivalent tons from Buffer Reserve required		
CALIFORNIA: **FULL SECTOR ACCOUNTING: Forest Emissions from conversion and loss**	**ACES** lacks full forest **Sector** Accounting: Credits forest sinks from Projects but does not correlate Project gains with Sector emissions from forest conversion and unavoidable losses, which may be substantial	California provides both "top down" forest sector accounting and "bottom up" project accounting, with the intent to quantify net GHG emissions (or sinks) for the forest sector as a whole. **SP:** Calls for *Forest Sector* accounting to monitor compliance with 5 MMt "no-net-forest-loss" 2020 SP target. **IFWG**: "*Interagency Forest Working Group*" is tasked to advise ARB on "top down" forest sector accounting and implementation. Methods under development to monitor forest emissions from land conversion, wildfire and other land use changes. **CEQA:** Required mitigation of forest emissions is considered under CA Env. Quality Act. **CAR:** Addresses project accounting only (bottom up), with a required discount to account for leakage.	**ACES** counting of Projects only disadvantages California's attention to Sector accounting. This affects leakage measures and incomplete true-up of forest gains and losses.	**SEE SUMMARY ISSUES TABLE**
INTERNATIONAL OFFSET CREDITS				
INTERNATIONAL OFFSETS: NON-FORESTRY				
Int'l: **AUTHORITY 743**	EPA Administrator in consultation with Sect'y State and USAID may issue international offset credits. Regulations to be developed within 2 yrs	**SP: FORESTRY AND NON-FORESTRY** For purpose of encouraging early action toward binding commitments, and reducing concerns about competitiveness and C leakage:	Benefits CA market to have access to high-quality international offsets that meet strong performance standards: -CA participation contributes to quality of int'l offset and builds confidence of CA	**SEE SUMMARY ISSUES TABLE**

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	of enactment. Int'l offset credits shall not be issued for destruction of hydrofluorocarbons (743(h))	ARB to consider limiting offsets from developing world to those that demonstrate performance in: - **C intensive sectors** (e.g. cement) - **Forestry:** eligible forest C activities in accordance with national or sub-national accounting frameworks. **Governors' MOU:** Agreement to work jointly to develop minimum performance standards or sectoral benchmarks, backed by monitoring and accounting.	buyers and public	
Int'l: **ELIGIBLE COUNTRIES**	Int'l offset credits recognized only if - US has bilateral or multilateral agreement with the country -Country is a developing country	**SP and Governor's MOU**: CA to preferentially accept credits from signators of sub-national MOU **SP**: pg 58 re: International Offsets: "*One concept being evaluated **for accepting offsets from the developing world** is to limit offsets to those jurisdictions that demonstrate performance in reducing emissions and/or achieving greenhouse gas intensity targets in certain carbon intensive sectors (e.g., cement), or in reducing emissions or enhancing sequestration through eligible forest carbon activities in accordance with appropriate national or sub-national accounting frameworks. **This could be achieved through an agreement to work jointly** to develop minimum performance standards or sectoral benchmarks, backed by appropriate monitoring and accounting frameworks. Such agreements would encourage early action in developing countries toward binding commitments, and could also reduce concerns about competitiveness and risks associated with carbon leakage.*"	**MOUs** may provide California experience with international offsets.	
Int'l: **SECTOR-**	**Sector crediting** to minimize leakage and	**MOU**: Implementation under development	CA benefits:	

OFFSETS

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

Category	HR 2454 (as passed in House 6-26-09)	AB 32, CARB Scoping Plan, and CAR Protocols	Implications for California	ETAAC Issues
BASED CREDITS (e.g. concrete, steel; non-forestry) **743**	encourage national mitigation actions. **Applies to Countries**: - with comparatively high GHG emissions or greater levels of economic development -that, if located in US, would be within a sector subject to compliance (722) (e.g. cement, steel,) - products sold in internationally competitive markets ***Sectoral Offset Credits*** issued for GHG reductions relative to domestically enforceable baseline of absolute emissions, established in a bilateral or multilateral agreement for the sector		International Sector crediting will capture leakage , thus reinforcing the validity of the int'l offset and confidence in their use in a California market	
INTERNATIONAL OFFSETS – FORESTRY				
OFFSETS FROM REDUCED DEFORESTATION 743 (e)	***Largely patterned after international REDD discussions*** *(Reduced Emissions from Deforestation and Degradation)* **National Baseline**: Considers: - average annual historical deforestation rates during at least 5 years; -drivers of deforestation and other factors to ensure additionality -Establishes trajectory to zero net deforestation by not later than 20 yrs. after nat'l baseline estab'd **Offset quantity** determined by comparing nat'l emissions from deforestation relative to national deforestation baseline established by agreement	ACES International program is relevant to further development of **Governors' MOU** **SP:** California tracks *Forest Sector* as a whole to monitor compliance with 5 MMt no-net-loss 2020 target in Scoping Plan. -Advisory Committee **IFWG**: "Interagency Forest Working Group" advises ARB on forest sector accounting and measures per SP provisions. **CAR** operates *Project* offset crediting, not sector crediting. Applies discount for leakage based on scale of risk.		

OFFSETS

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Category	HR 2454 (as passed in House 6-26-09)	AB 32, CARB Scoping Plan, and CAR Protocols	Implications for California	ETAAC Issues
	Offset Activity must be designed and managed to provide: -sustainable forest mgmt. -native forest species and ecosystems -give due regard to rights and interests of local communities, indigenous peoples -in consultation with stakeholders -equitable distribution of profits **Degradation and soil carbon from peatlands and wetlands** may be included within meaning of deforestation 743 (e)(7)			
743 (e) (2) ELIGIBLE COUNTRIES	**Forest *Sector* Offset provisions** limited to Developing countries with: -Bi- or multilateral agreement with US and -Capacity to *monitor, measure, verify* forest C fluxes -*Institutional capacity* to reduce deforestation including forest governance and mechanism to distribute resources -*Land use or forest sector plan* that assesses drivers of deforestation; identifies improvements necessary to implement national program; establishes timeline for implementation	**MOU and SP:** See above, and pg. 58 SP for reference to preferential position in a California trading market for international offsets from MOU partners		
Int'l: **STATE- or PROVINCE-LEVEL ACTIVITIES 743 (5)**	**Forest *Sector* Offset crediting** for sub-national entities comparable to national reqmts: *Within 2 yrs*: EPA Administrator/ Sect'y State/ USAID to establish list of states or provinces which are major emitters from tropical deforestation	**GOVERNORS' MOU**: Addresses sub-national entities -Requires state or province performance above a sub-national baseline. - Undetermined yet if sub-national compliance with a national baseline or reference level will also be required	EPA criteria for State and Province-level activities are immediately applicable to CA implementation decisions for Governor's MOU with partner states	

OFFSETS

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

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	-meets criteria of 743(e)(2)and(3) above **State or Province Deforestation Baseline**: -consistent with nat'l baseline -considers historical deforestation rates during at least 5 year period -considers drivers of deforestation and other factors to ensure additionality -established trajectory that would result in zero net deforestation within 20 yrs -designed to account for leakage outside the state or province. Offset Credits determined by comparing deforestation emissions from state or province relative to state baseline established through bi/multilateral agreement			
LOW-EMITTING FORESTED COUNTRIES: ***Project Offsets*** **743 (e) (6)**	***Forest Project* Offset crediting from eligible countries: (i.e. not sector crediting)** -Eligible Countries account for <1% of global GHG emissions and <3% global forest sector and land use change GHG emissions -Make good faith effort to develop forest sector strategic plan Authorizes offset credits from **Project-level activitie**s that are adjusted for leakage **Phase-Out:** No further offset credits for projects after 5 years; but may extend additional 8 yrs. per requirements	No separate consideration for low vs. high emitting countries MOU partners to date are high emitting for relevant sectors: *Forestry*: Indonesian provinces; Brazilian states; *Cement*: China provinces No Phase-out		

OFFSETS

American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

Category	HR 2454 (as passed in House 6-26-09)	AB 32, CARB Scoping Plan, and CAR Protocols	Implications for California	ETAAC Issues
ALLOWANCE ALLOCATION for INTERNATIONAL REDUCED DEFORESTATION Title VII Part E: 754, 753,781; Part A 704				
SUPPLEMENTAL EMISSIONS REDUCTIONS THROUGH REDUCED DEFORESTATION Part E §753, 704	**Allocation (not offset) program** to achieve supplemental emissions reductions of at least = 720 MMt CO2e in 2020 = 6 BMt CO2e by 2025, plus subseq't yrs. In 2020, to provide 10% additional GHG reductions from 2005. -Build capacity to reduce deforestation in developing countries -Preserve existing forest carbon stocks esp. in countries with largely intact native forests	Program relevant to further development of Scoping Plan and **Governors' MOU** *(See SP provisions under 743 above)* -Potential cooperation bet. CA and partner signators on supplemental USAID programs	All relevant to CA implementation of Governors' MOU	
ALLOWANCE ALLOCATION (for international forestry, Part E) Part H **§754, 781**	<u>% Emission Allowances for Distribution</u> (781(a)) 2012-2025 = 5%; 2026-2030 = 3%; 2031-2050 = 2% Administrator may adjust annually; carryover permitted -Not authorized as Offsets (781) EPA Administrator to distribute emission allowances to eligible countries *or to International Funds* with concurrence of Sect'y of State 754 (a) Allowances provided for 5 years, with discretionary 5 year extension if country making progress and leakage discounted 754(g)		"	
AUTHORITY 754 (b) (2)(b	**USAID** has primary responsibility to select activities in consultation with EPA Administrator		"	
AUTHORIZED	**Capacity building** to reduce deforestation,		"	

OFFSETS

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Category	HR 2454 (as passed in House 6-26-09)	AB 32, CARB Scoping Plan, and CAR Protocols	Implications for California	ETAAC Issues
ACTIVITIES 754	incld'g: -sub-national pilot programs -develop national baselines -develop measurement, monitoring; leakage prevention; governance; enforcement; policy reform incentives; evaluation			
REGISTRY OF SUPPLEMENTAL EMISSIONS REDUCTIONS §754(f)	Administrator shall establish publicly accessible **Registry** of emissions reductions achieved through program, including discounting for uncertainty			
ADDITIONAL ELEMENTS				
STRATEGIC ALLOWANCE RESERVE §726(g),(h)	- initially stocked with allowances withheld from cap and made available at auction if allowance price exceeds 160% of three-year average. -Auction proceeds used to **buy international offset credits from reduced deforestation** to help refill reserve -Intn'l offset credits retired and exchanged for emission allowances at 80% .			

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BIOMASS
American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

Category	HR 2454 (as passed in House)	AB 32 CARB Scoping Plan & CAR Forest Protocols	Implications for California	ETAAC Member Issues
BIOMASS DEFINITION 700 *** = provisions not included in Farm Bill (P.L.110-234)**	**RENEWABLE BIOMASS =** **Federal lands:** -Materials removed from federal timber sales to reduce hazardous fuels, disease, restore ecosystem health; *to be harvested in environmentally sustainable quantities as determined by appropriate Fed. Land manager; *Not from federally protected areas (e.g. wilderness, roadless, old growth stands, late-successional stands (except for dead, severely damaged, or badly infested trees) **Non-Federal and Indian lands:** -Any organic material available on renewable or recurring basis; Including feed grains; other agricultural commodities; other plants and trees; algae; **waste material**, including crop residue; other vegetative waste material (including wood waste and wood residues); animal waste and byproducts (including fats, oils, greases, and manure);construction waste; food waste; yard waste. Residues and byproducts from wood, pulp, or paper products facilities.	**Scoping Plan:** No definition "biomass" ***16. Sustainable Forests*** *Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.* *…Biomass resources from forest residue will factor into the expansion of renewable energy sources* ***(this is currently accounted for in the Energy sector). Emphasis added*** *…The move toward 33 percent renewables will, by definition, increase the diversification of California's electrical supply. Increased use of wind, solar, geothermal and biomass (including from the organic fraction of municipal solid waste) generation will all add to ensuring the state has a broader portfolio of energy inputs.*	**1. INCOMPLETE FOREST CARBON ACCOUNTING**: Biomass removal in CA forests highly controversial -concern for over-removal of standing forest stock ACES lacks requirement for forest carbon accounting between pools: (e.g. depletion of forest stock pool to supply biomass pool and energy sector) 2. **SECTOR BOUNDARIES NOT YET ESTABLISHED** for forest carbon accounting, e.g. bet.: • Forest pool • Wood products pool • Biomass pool and • Solid waste/landfill **3. CALIFORNIA FOREST INDUSTRY CONCERNS:** • Concern that small material cleared from late seral stands to reduce competition or reduce fire hazard will not be eligible for biomass use. • Difficult to separate biomass materials from private and public sources in sort decks	**Needs watching:** Four different federal Biomass definitions in play: -Farm Bill (very inclusive) -Energy Bill (omits federal lands) -Waxman-Markey(federal and private, but no environmental provisions for private lands) -Bingaman bill **Accounting Suggestion**: Each entity account for C gains and emissions during period they have control: e.g. *forest owner:* account from forest pool to point of sale/intake to mill, or delivery as biomass or landfill waste *Wood product mftr*: account from log intake to product sale *Landfill operator:* Account from delivery to landfill site to decay *Biomass entity:* account in Energy sector from receipt of biomass to disposal/combustion. Apply renewable energy provisions that pertain.

Category	HR 2454 (as passed in House)	AB 32 CARB Scoping Plan & CAR Forest Protocols	Implications for California	ETAAC Member Issues
INTERNATIONAL BIOGENIC CARBON COMBUSTION CONVENTIONS Per *IPCC Waste Management Guidelines* and *USEPA GHG Inventory*			Concern by some groups that US inventory of Biomass stocks in land use and forestry sectors is not sufficiently fine-grained to reflect stock decrease from biomass removal. Improved sector Accounting at state and regional levels would refine stock change measures from land-use and forestry. California's IFWG and USFS are addressing improved forest C stock accounting methods on state level.	CO_2 emissions from combustion of biogenic C should not be counted, as these emissions are part of the "plant carbon cycle" versus the "fossil carbon cycle." IPCC 2006 Guidelines, Chapter 10 on Waste Management states: "The CO_2 emissions from biomass sources – including the CO_2 from landfill gas, the CO_2 from composting, and the CO_2 from incineration of waste biomass – are not taken into account in GHG inventories as these are covered by [anthropogenic] changes in biomass stocks in the land use and forestry sectors." EPA's 1990-2006 Greenhouse Gas Inventory states that "fuels with biogenic origins are assumed to result in no net CO_2 emissions to atmosphere."
A PRIORI ASSUMPTION OF C-NEUTRALITY OF BIOMASS	No reference to C accounting for Biomass. Assumption that Renewable Biomass is Carbon neutral by definition. (see IPCC and EPA reference above)	**Western Climate Initiative (WCI):** *Requires affirmative decision* by each WCI Partner jurisdiction that biomass is carbon neutral. *"1.3. For biomass **determined by each WCI Partner jurisdiction to be carbon neutral**, the carbon dioxide emissions from the combustion of that biomass are not included in the cap-and-trade program, except for purposes of reporting.* ***…**Similarly, the CO_2 emissions from the combustion of bio-fuels … will not be covered by the program emissions cap. However,*		**Need:** -Reporting entity to justify C-neutrality of specific biomass proposals (no blanket assumption) Address : -depletion of source pools; - benefits and risks of short term C decrease in standing stock to increase long term forest resilience

Category	HR 2454 (as passed in House)	AB 32 CARB Scoping Plan & CAR Forest Protocols	Implications for California	ETAAC Member Issues
		CO2 emissions from biomass, bio-fuels, and the bio-fuel component of blended fuels will ***be subject to reporting requirements.*** *…*		
OTHER ISSUES **700(41); 553**	*Within 1 year:* For Non-Federal Lands: *EPA, USDA, FERC to jointly arrange for Nat'l Acad. Sciences "to evaluate how sources of renewable biomass contribute to the goals of increasing America's energy independence, protecting the environment, and reducing global warming pollution". **(533)** *Administrator in concurrence with Sect'y USDA may modify non-Federal lands portion of the definition of `renewable biomass".*			Obtaining concurrence bet. EPA and USDA to modify biomass definition may be difficult

Table 6: SUMMARY POINTS for OFFSETS
American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

TOPIC	KEY POINT (See full offset table)	ETAAC COMMENT
1. EARLY ACTION: - **Recognition of Climate Action Reserve (CAR) as an Early Action GHG Reduction Program** - **Grandfathering of CAR CRTs**	**CAR APPEARS ELIGIBLE:** The **Climate Action Reserve (CAR**) appears to meet all tests of ACES as an eligible early action program. **CAR CRTs RECEIVE FULL EXCHANGE VALUE**: CAR CRTs issued bet. 2009 – 2012 can be exchanged 1:1 for Offset Credits and used for compliance purposes CAR CRTs issued bet. 2001 – 2008 receive emission allowances in an amount equal to the average value of the Early Action credits from 2006-2009	**POSITIVE: Retain CAR Eligibility under ACES** ***As ACES moves forward:*** • ***Retain recognition*** *of CAR as a pre-existing, state authorized, GHG reduction program* • ***Retain Exchange value*** *for CAR CRTs issued between 2009-2012, and between 2001-2008, as specified* • ***Clarify ambiguous language*** *to ensure value of "Early Action credits" is based on average value within a program type, and not across programs of different rigor which would devalue CRTs* **ETAAC** members representing emission sectors express need for offsets based on existing protocols, especially during the early transition years, e.g.: ***PG&E:*** "A sufficient supply of high-quality offsets would mitigate customer costs, especially in the early years of the program, when investment in long-term projects has not yet yielded emission reductions. Protocol development is a lengthy process, taking between 1.5 and 6 years, so adopting existing protocols would ensure offset availability in the early program years"
2. QUANTITY OF OFFSETS AUTHORIZED: ACES vs. CALIFORNIA and WCI	ACES authorizes a higher percentage of offset use than is proposed in Scoping Plan and WCI recommendations.	ETAAC members representing emission sectors express a need for large quantities of offsets, but of high quality. Other members express concern that high availability and use of offsets will reduce the incentive to lower GHG emissions.

Table 6: SUMMARY POINTS for OFFSETS
American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

TOPIC	KEY POINT (See full offset table)	ETAAC COMMENT
3. HIGH QUALITY OFFSETS: **Potential for conflicting standards and quality of offsets bet. EPA and USDA**	ACES establishes split authority over offsets based on project type: • **EPA**: Jurisdiction over all offset types, including international forestry, but excluding domestic agriculture and forestry • **USDA**: Jurisdiction over domestic agriculture and forestry Standards in ACES for EPA and USDA differ in authority of Secretary and Administrator; presumptive eligibility of offset project types; offset standards and rigor; public procedures Conflicting standards may destabilize offset quality and integrity of the cap.	State and Federal offsets must of similar rigor and quality. Federal process for developing offsets should mirror CAR's process for voluntary offsets. A single, rigorous process should be consistent between federal agencies and should consider California and WCI work to date. If EPA and USDA retain their split authority, then: • ***Standards in ACES should be amended to ensure equal rigor*** *for offsets across EPA and USDA jurisdictions;* • ***Procedures*** *for developing eligible project lists, offset methodologies****, should be parallel across agencies*** • ***Ensure offsets are high quality*** *to maintain integrity of the emissions cap*
4. LIST of ELIGIBLE OFFSET PROJECT TYPES	**USDA**: ACES lists explicit offset project types for domestic agriculture and forestry, assuming scientific and technical validity *a priori*. **CAR** has evaluated several of the project types listed for USDA and has decided not to develop standards for some based on short-term carbon benefit and easy reversibility. **EPA** : No explicit list of eligible project types. Rather, a 1-2 yr. public process is authorized to identify eligible offset project types and methods, and difficulties in quantifying and verification.	**OPTIONS** **STANDARDS APPROACH:** ***Clarify*** that the list of USDA offset project types in ACES is illustrative, and not eligible "per se", pending further scientific and technical review **PROCESS APPROACH:** ***Delegate*** development of the list of eligible project types to a rulemaking process that includes scientific, technical and stakeholder input

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American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

TOPIC	KEY POINT (See full offset table)	ETAAC COMMENT
5. PERMANENCE STANDARD: **No definition for Offset Duration**	**ACES** lacks explicit definition of Permanence, and is silent on the length of time that an emitted ton must be offset for. **CAR:** For forestry as a reversible offset type, CAR sets a Permanence standard based on IPCC guidance of 100 yrs. , representing the duration for which an emitted ton of CO2 in the atmosphere should be offset. Reversible Offset types (ag, forestry) may re-emit carbon to atmosphere at end of the crediting period. In contrast, methane capture and destruction is an immediate, non-reversible offset.	**OPTIONS** **STANDARDS APPROACH:** • ***Add explicit time duration of 100 years*** *for the offset of an emitted ton based on IPCC guidelines to ensure validity of the offset.* **PROCESS APPROACH:** • ***Defer*** *to Advisory Panels and Administrator/Secretary rulemaking to set Permanence requirement and duration of obligation for required offset of an emitted ton*
6. CREDITING PERIODS	Crediting periods for projects are separate from the duration required to offset an emitted ton. Authorized crediting periods in **ACES**: = 5 years for agricultural sequestration practices; = 20 years for forestry sequestration practices; and = 10 years for other practice types **CAR** crediting periods: = 10 years for most project types = 100 years for forest projects = agricultural protocols await further research on issue of permanence and easy reversibility ACES provides no standard for the number of crediting	**OPTIONS** **In ACES:** • ***Authorize forest projects "..up to" 100 years*** *for full credit, with proportional discount of offset credits for shorter projects* • ***Clarify*** *relationship between Crediting Periods and Permanence requirements* • ***Ensure*** *issues of reversibility of short term projects are addressed*

Table 6: SUMMARY POINTS for OFFSETS
American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

TOPIC	KEY POINT (See full offset table)	ETAAC COMMENT
	periods needed to offset an emitted ton (e.g. five, 20 yr. forest projects or equivalent?)	
7. TERM CREDITING	Issue of quality and market acceptance of Term Credits: - Short term projects offer low bar for offset quality, price and carbon management opportunities - Administrative complexity for buyer leads to low acceptance and low market price; e.g. Term Credits under CDM (5 yr. tCERs) have attracted few buyers on Int'l market -Buyer is left with uncertain offset obligation without permanence definition, i.e. ACES lacks definition for *"…quantity of allowances of credits necessary to demonstrate final compliance"* (ACES) The Term Credit approach of CDM was established for forestry projects in non-Annex I countries in response to risk of reversal	Several ETAAC members question validity of Term Offset Credits due to their short term carbon gains and reversibility, especially combined with lack of Permanence definition. • **Consider direct payments** rather than offset mechanisms to incentivize short- term carbon gains. Direct payments for the same carbon benefit may be more efficient in avoiding accounting and transactions costs, and would not impact the integrity of the cap caused by low-quality offsets.
8. FULL FOREST SECTOR ACCOUNTING: Forest Emissions from conversion and loss	**ACES** does not correlate GHG gains from forest and agricultural offset projects with emissions from the sector as a whole, caused by land conversion and other avoidable and unavoidable reversals. - Loss of private forestland will emit 30 billion tons of CO2 by 2050 (USFS) but projected forest emissions are not reflected in calculating the cap. -**CA Scoping Plan**: Requires accounting for the forest sector as a whole to track forest emissions as well as gains.	**OPTIONS** ***Specify in the 5-yr. Report by EPA and USDA:*** *A requirement for USDA and EPA to include tracking of sector-wide forest and agriculture emissions. This will better inform leakage calculations and progress towards or away from the cap caused by changes in forest and agricultural sectors.*

Table 6: SUMMARY POINTS for OFFSETS
American Clean Energy and Security Act of 2009 (HR 2454) & California Global Warming Solutions Act of 2006 (AB 32)

TOPIC	KEY POINT (See full offset table)	ETAAC COMMENT
9. INTERNATIONAL FOREST OFFSET AND ALLOWANCE PROGRAMS ***(REDD)***	**ACES** provides standards, criteria, and accounting approaches (sector and project) for reducing deforestation in developing countries. Provisions are consonant with the international dialogue on **REDD** *(Reduced Emissions from Deforestation and Degradation).* Program standards address technical capacity, governance, recognition of indigenous peoples and stakeholders, equitable revenue distribution, monitoring, need for bi- or multi-lateral agreement, and other key program elements.	***All program elements and criteria are relevant to*** *California implementation of the* ***"Governors' Memorandum of Understanding (MOU) to reduce forestry-related greenhouse gas emissions****" with sub-national partners.* - EPA criteria can assist CA in developing work plans for sub-national cooperation to generate high quality international offsets. MOU signators currently include 2 provinces in Indonesia and 4 Brazilian states, representing a large proportion of global forests experiencing deforestation. ***PG&E:*** *Concerned that the current move from project-based offsets to sectoral crediting is complicated and will take time to develop. While these sectoral crediting systems have been proposed and discussed by national and international legislative bodies, none have been implemented yet. As these crediting systems develop, it is important to allow for the use of the best existing international offsets, to increase offsets supply, particularly in the first compliance period.*